SAN FRANCISCO PUBLIC LIBRARY
3 1223 07087 0689

DOCUMENTS DEPT.

MAY 1 4 2007

SAN FRANCISCO
PUBLIC LIBRARY

5/S

San Francisco Public Library

Government Information Center
San Francisco Public Library
100 Larkin Street, 5th Floor
San Francisco, CA 94102

REFERENCE BOOK

Not to be taken from the Library

ffice of the Controller
get and Analysis Division
ice of Economic Analysis

Economic Impact Report
l of Agreement with EarthLink, Inc.
/ireless Broadband Internet Access Network
File No. 070077

d Findings:

San Francisco ("City") spent more than one year requesting contractors
-Fi Access in San Francisco and EarthLink, Inc. was the chosen bid in a
:e the company offered the best proposal.

thLink, Inc. consists of:
twork that the company will install, manage and operate at no cost to the
/i-Fi Network will be citywide and the equipment will be placed on existing
City's public rights-of-way (ROW) and PG&E poles.
of two types of service:
ee service with a minimum average speed of 300 kilobits per second
)s).
east one for-pay subscription service with a minimum average speed of
)0 kbps—also known as 1 megabit per second, or 1 mbps.
three $200,000 non-refundable pre-payment installments for the use of
the City's rights-of-way. Each pre-payment installment is tied to milestones in furthering the Agreement.

- A quarterly fee of 5 percent of EarthLink's revenues from subscription services, once the Network is operating. The payment will be net of up to $18,750 per quarter to be deducted from the $600,000 in prepayments.
- A four-year term that begins with the City's Approval of EarthLink's final deployment plans. 3 additional four-year term renewals with renegotiation options. 18-month grace periods serve as a bridge between the four-year terms in case of delays.
- An 18-month limit on the Network's build-out, open access on the free portion of service, with Network and service upgrades to occur annually, setting the free service speed to at least 15 percent of the best-selling for-pay service offered by EarthLink, Inc.

- Payments from EarthLink will allow the City to fund Digital Inclusion Programs.

D
REF
354.75
Sa527e

May 10, 2007

DOCUMENTS DEPT.
MAY 14 2007
SAN FRANCISCO
PUBLIC LIBRARY

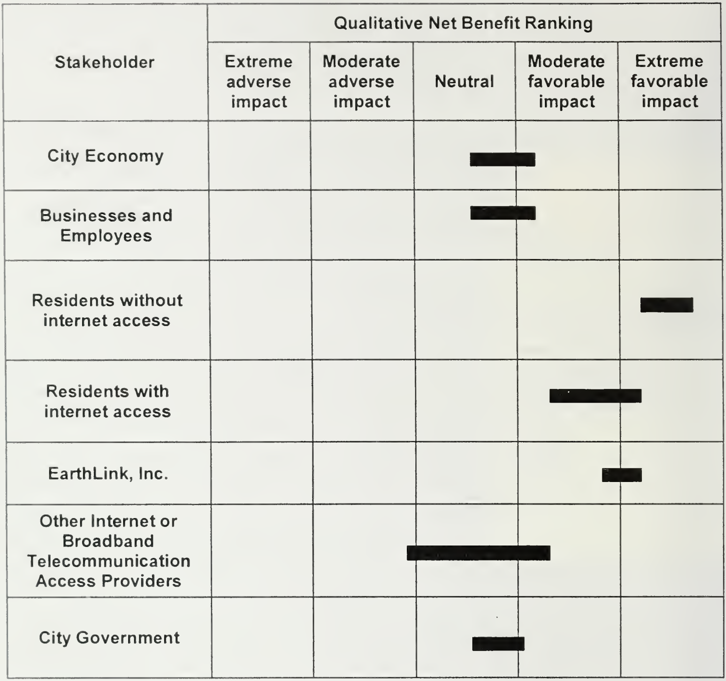
Office of the Controller
Budget and Analysis Division
Office of Economic Analysis

Economic Impact Report
Approval of Agreement with EarthLink, Inc.
For a Citywide Wireless Broadband Internet Access Network
File No. 070077

Proposed Agreement Features and Findings:

- The City and County of San Francisco ("City") spent more than one year requesting contractors to offer bids to build Wi-Fi Access in San Francisco and EarthLink, Inc. was the chosen bid in a competitive process since the company offered the best proposal.
- The Agreement with EarthLink, Inc. consists of:
    - A Wi-Fi Network that the company will install, manage and operate at no cost to the City. The Wi-Fi Network will be citywide and the equipment will be placed on existing poles in the City's public rights-of-way (ROW) and PG&E poles.
    - A minimum of two types of service:
        - A free service with a minimum average speed of 300 kilobits per second (kbps).
        - At least one for-pay subscription service with a minimum average speed of 1,000 kbps—also known as 1 megabit per second, or 1 mbps.
    - $600,000 in three $200,000 non-refundable pre-payment installments for the use of the City's rights-of-way. Each pre-payment installment is tied to milestones in furthering the Agreement.
    - A quarterly fee of 5 percent of EarthLink's revenues from subscription services, once the Network is operating. The payment will be net of up to $18,750 per quarter to be deducted from the $600,000 in prepayments.
    - A four-year term that begins with the City's Approval of EarthLink's final deployment plans. 3 additional four-year term renewals with renegotiation options. 18-month grace periods serve as a bridge between the four-year terms in case of delays.
    - An 18-month limit on the Network's build-out, open access on the free portion of service, with Network and service upgrades to occur annually, setting the free service speed to at least 15 percent of the best-selling for-pay service offered by EarthLink, Inc.
- Payments from EarthLink will allow the City to fund Digital Inclusion Programs.

May 10, 2007



Stakeholder	Qualitative Net Benefit Ranking				
	Extreme adverse impact	Moderate adverse impact	Neutral	Moderate favorable impact	Extreme favorable impact
City Economy			■	■	
Businesses and Employees			■	■	
Residents without internet access					■
Residents with internet access				■	■
EarthLink, Inc.				■	■
Other Internet or Broadband Telecommunication Access Providers		■	■	■	
City Government			■	■	

Conclusion

The proposed Wi-Fi Agreement between the City and EarthLink, Inc. creates a favorable economic impact to San Francisco's economy, primarily by increasing the Internet service options available to City residents. We anticipate that current residential consumers of Internet services will save between $9 and $18 million annually, because of greater consumer choice, if the agreement is adopted. Significant numbers of San Francisco households who do not currently have Internet access will also use the Wi-Fi service, reducing the digital divide in the City and helping to incorporate low-income and disadvantaged populations into the economic mainstream. In addition, many of San Francisco's portable and mobile Internet users will benefit from the service.

The provider of the network will also gain from this provision, as it will be able to expand its scope of client services and revenue sources. City government will also be favorably impacted since the agreement will enable the City to establish and run digital inclusion programs at no infrastructure cost, and collect right-of-way and pole fees. Only other providers not seeking similar agreements may be moderately adversely affected by this agreement; however, third party internet service retailers may discover new business opportunities.

Economic Scorecard	Wi-Fi Agreement is Approved and Implemented	Status Quo
City Economy	**Neutral to Moderately Favorable Impact** The magnitude of this contract represents a small fraction of the City's gross economic product.	The City's economic outlook for the next two years is one of steady improvement due to sustainable growth in knowledge industries and professional services job sectors, as well as activity in tourism and conventions.
Businesses and Employees	**Neutral to Moderately Favorable Impact** Some Businesses and Employees may switch to no-fee Wi-Fi service if the bandwidth does not impact business operations and if it does not compromise reliability thresholds or access to existing virtual contact information essential to their commercial activity.	Most businesses and their employees that require reliable service either already get such service for pay or will have to acquire it to remain competitive. Other Private and Public initiatives are evolving to continue to expand the scope, scalability and breadth of internet access for commercial services.
Residents without internet access	**Extremely Favorable Impact** For qualifying City dwellers who receive the needed subsidized equipment, free internet access represents a significant subsidy. Potentially, the Digital Inclusion Programs funded by this Agreement may enable some of the city's neediest residents to obtain and share timely and accurate knowledge or information on valuable resources and services, such as online application to jobs.	
Residents with internet access	**Moderately Favorable to Extremely Favorable Impact** Some residents may opt to forego their current for-pay service and migrate to either the free or premium services. We estimate the consumer savings from such switching will range from $9.6 to $18.1 million annually.	Market for internet access continues evolving at the pace permitted by value-added decisions made by existing market providers of internet access and public sector initiatives.

3 1223 07087 0689

Economic Scorecard	Wi-Fi Agreement is Approved and Implemented	Status Quo
EarthLink, Inc.	**Moderate to Extremely Favorable Impact** The Agreement provides EarthLink with a “first mover” advantage that should have a positive impact on its ability to increase its fee-based market share of internet services by providing them with the ability to offer its customers wider and more reliable internet access and service than their competitors currently posses. The Agreement enables EarthLink to compete in the converging telecommunication markets with companies that have a larger presence in alternative modes of content delivery such as Comcast and AT&T.	EarthLink, Inc. continues to be a provider of internet services in San Francisco.
Other Internet or Broadband Telecommunication Access Providers	**Moderately Adverse to Moderately Favorable Impact** The Agreement is non-exclusive. Other providers may engage the City with comparable agreements that may restore any competitive disadvantage they may face as a result of competing with EarthLink, Inc. However, resellers and other Internet Service Providers (ISPs) who can retail EarthLink’s premium service will benefit from expanded consumer choice.	Other for-profit and non-profit providers of internet access may continue developing their business strategies to successfully compete for the different market segments that exist and that will continue to grow in the City.
City Government	**Neutral to Moderately Favorable Impact** City funds a Digital Inclusion Program by revenue sharing with a for-profit service provider that allows limited (lower-bandwidth) “free” access to City residents who can not afford, or do not have access to, the internet. Some City programs may be further enabled on the service provision side by greater connectivity to service information.	City moves forward in its technology planning and implementation of existing initiatives without this Agreement.

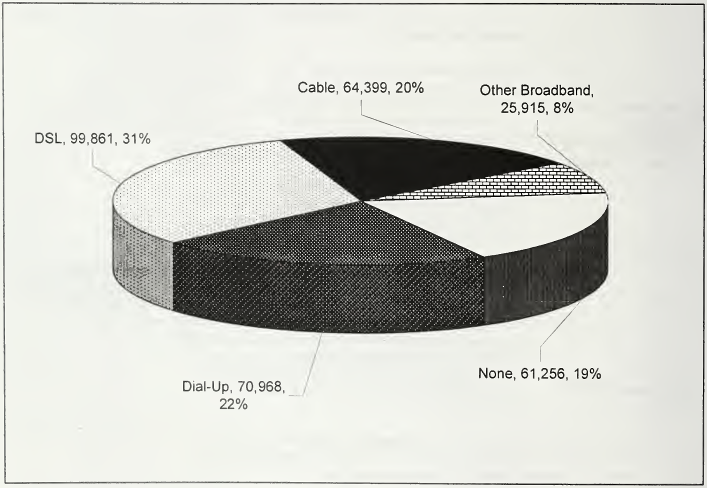
Discussion of Economic Impacts

This report highlights important aspects of the economic impact of the proposed agreement between EarthLink and the City and County of San Francisco. It makes no attempt to argue for or against the notion that the proposed agreement represents a good deal from the perspective of City government. Nor is the proposed technical solution, or model of public-private partnership that it entails, compared with any other technology or operating model. In keeping with the mandate of the Office of Economic Analysis, this report simply tries to assess the impact of this particular proposed agreement on the San Francisco economy.

Impact on Consumers in San Francisco

We estimate that as of 2007, the Internet Services market in San Francisco breaks down as shown in Figure 1. According to the 2007 City Survey published by the Controller's Office, 81% of San Francisco households have a home computer that connects to the Internet. This corresponds closely to national trends; we also estimate that 81% of adults across the U.S. are Internet service subscribers[1].

Figure 1: Estimated Internet Service Type of San Francisco Households, 2007



---

[1] Our source for this is the Pew Internet and American Life Project's *Home Broadband Adoption 2006 report*. That report indicated that 66% of US adults were Internet subscribers in March 2005, and 73% in March, 2006. Based on that growth rate, 81% of US households would be Internet subscribers in March, 2007.

The 81% of San Francisco households with home Internet access currently connect to the Internet using three main technologies—dial up modems, Digital Subscription Line (DSL) modems, and Cable modems. Based on national subscription rates associated with these technologies, we estimate that 31% of all San Francisco households are DSL subscribers, 22% are dial-up modem subscribers, and 20% are cable subscribers. 8% have broadband access through another means.

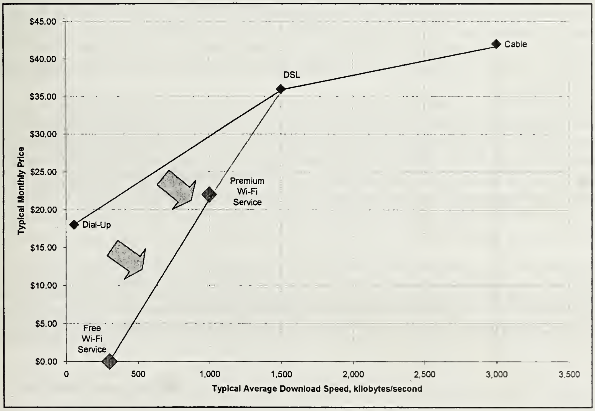
How the Proposed Agreement Would Change the Internet Services Industry in San Francisco

The proposed agreement would materially impact the San Francisco economy in a variety of ways, but the most important is how it would change in San Francisco's Internet Services industry in ways that benefit consumers. As Figure 1 indicated, dial-up access, DSL, and cable modems are the three dominant methods of residential Internet access in San Francisco at present. The proposed agreement would add two more consumer choices—a free, advertising-supported wireless service, and a premium, higher-speed wireless service that would be price-competitive with dial-up service providers.

Impact on Existing Internet Users: Increasing Consumer Choice

If allowed to enter the City's residential Internet services market, these two services would compete with the three existing technologies on the basis of quality and cost of service. Average connection speed is the primary feature that residential customers seek. Figure 2 indicates how the entrance of the new Wi-Fi services would, in general terms, impact consumer choice around the cost and speed of Internet service. The existing technologies are shown as small diamonds and the new wireless services are shown in lighter shade, larger sized diamonds.

Figure 2: The Residential Internet Service Market in San Francisco, After the Agreement: Faster Speeds at a Lower Price



We must immediately stress that these average connection speeds are meant to be indicative. Average speeds experienced by DSL and cable subscribers vary widely, and are dependent on specific factors such as the current user load, and the user's distance from network infrastructure. In addition, for the potential new entrants, we have used their *required minimum* average connection speeds as defined by the agreement, while for the existing technologies, we have used typical average connection speeds as claimed by vendors. Thus, these estimates may be conservative against the two wireless services, and understate their true advantages to local consumers.

Even so, Figure 2 indicates that both wireless services offer significant advantages over existing service providers; particularly dial-up service providers. The free service offers higher connection speeds at, of course, no cash cost. The premium service is priced at a typical dial-up rate, but offers connection speeds approximately 20 times higher than that available through a 56k modem. Figure 1 showed that over 70,000 San Francisco households still use a dial-up connection[2].

Both the free and premium services will also likely compete with DSL and Cable providers, for those customers seeking a lower-cost high-speed solution. The premium service will be offered at approximately a 40 percent discount relative to average monthly DSL prices[3], and approximately a 50 percent discount to monthly bundled cable prices[4]. We would expect, therefore, that a percentage of these existing high-speed Internet consumers would switch to one of the new wireless services.

By increasing the range of consumer choice of residential Internet service providers, and offering lowering prices to a technology now used by 70,000 San Francisco households, the proposed Agreement would have a highly favorable impact on San Francisco residents who currently use the Internet at home.

In the following page, Table 1 quantifies the possible consumer savings that could result from the proposed Agreement. It concludes that **the proposed agreement would result in annual consumer savings of between $9.6 million and $18.1 million**, as some consumers would switch to cheaper forms of Internet access. In addition, some consumers—such as those switching from low-speed dial-up service—will benefit from higher speeds as well. We have not attempted to quantify these benefits.

The analysis contained in Table 1 hinges on assumptions about how many San Francisco residents would switch from existing Internet technologies. These assumptions are informed by the data displayed in Figure 2 and, like that table, we believe they are conservative assumptions. Specifically, the high end estimates contained in Table 1 were set so that the total number of customers who switched to both the free and premium services matched subscriber estimates that

---

[2] Many dial-up services, like AOL's, offer proprietary web-based content bundled with their internet service. In those cases, switching to the free or premium Wi-Fi services, which would not offer that content, would not be a matter of exchanging like for like. Most content providers, however, do not exclusively associate their content with any one internet service provider. In addition, the market price for dial-up services is set by service providers who do *not* bundle content, and it is not clear that content bundlers receive a price premium. We assume that the proprietary content of dial-up internet service providers would not inhibit many customers from switching given the significant price and performance differences.

[3] The source for these average monthly prices is the Pew Internet and American Life Project's *Home Broadband Adoption 2006 report*.

[4] In San Francisco, Comcast offers high-speed Internet for $56.95/month if no other services are bundled with it, and offers a bundle of cable television, digital voice, and high-speed Internet for $100/month.

EarthLink provided to this office. The lower estimates are roughly half of the high end estimates and are provided in case EarthLink's estimates were too optimistic.

Table 1: Estimated Consumer Savings from New Wireless Services

Existing Service Type	Number of Current Customers	Current Average Monthly Price	Assumed % Switch to Free Service	Assumed % Switch to Premium Service	Average Annual Price Savings Per Switching Customer	Total Annual Consumer Savings ($000s)
Cable	64,399	$41	0%	5-10%	$229	$736-$1,472
DSL	99,861	$32	0-5%	10-20%	$121-$173	$1,204-$4,326
Dial-Up	70,968	$18	50-80%	0%	$216	$7,665-$12,263
						$9,604-$18,061

Impact on New Users: Addressing the Digital Divide

As stated above, 19% of San Francisco households do not have a personal computer with Internet access at their home. According to the 2007 City Survey, 50% of low-income households do not have Internet access at home, and there are other significant digital divides in San Francisco around race, gender, age, and disability. Because the Internet has become such a vital part of the infrastructure of mainstream society, disconnection from this communications medium tends to perpetuate social marginalization and poverty.

The impact of the proposed Agreement on the digital divide will be real, but limited. The cost and availability of Internet service is not the only reason why San Francisco residents do not use the Internet; the lack of computers, training, support services, and personal interest are all contributing factors. Nevertheless, the free service does represent an effective subsidy—currently valued by the market at $18/month, given prevailing dial-up prices—to over 60,000 San Francisco households that currently do not have Internet access at home.

Portable, Mobile, and Occasional Use Markets

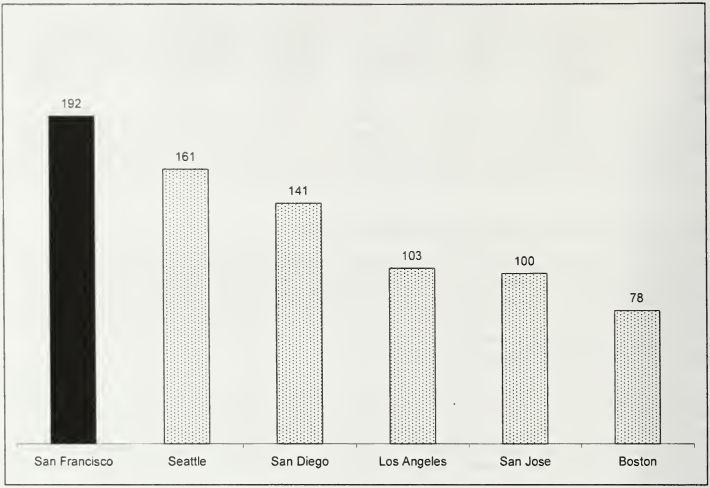
Another rapidly emerging form of Internet use is the portable/mobile/occasional use market, which refers to individuals using a temporary internet connection with a portable internet-ready device, such as a laptop or a Wi-Fi-enabled cellular phone[5]. These Internet sessions are often conducted at localized "hot spots" that commercial businesses have created at cafes, bookstores, airports, and other locations. A February 2007 data memo from the Pew Internet and American Life project reported that 27% of U.S. internet users had accessed the Internet wirelessly from a location *other* than their home or work. The same memo reports that 25% of Internet users had a cell phone with internet access, and 13% had a personal digital assistant or similar device that could access the Internet.

Figures on the number of users of this market in San Francisco are not available. However, it is likely that given the large numbers of knowledge workers in the City that have a strong need for mobile access, the market is both larger and growing more rapidly here than in other places. For example, according to The Wi-Fi411, an industry directory, San Francisco currently has more hot spots than Seattle, Los Angeles, or San Jose.

---

[5] "Portable" users are those who access the Internet in a single fixed location using a portable device, such as sitting at a café with a laptop. "Mobile" users are those who access the Internet using a portable device while moving, such as surfing the Internet on the bus.

Figure 3: Number of Hot Spots: San Francisco and Other Large Cities



The proposed wireless services are unlikely to compete directly with "hot spots", which offer higher connection speeds for occasional users. They will, however, likely supplant cellular wireless internet services, which offer slower connection speeds than the free Wi-Fi service. Thus, we would expect that the proposed agreement would particularly benefit mobile and portable internet users.

Impact on EarthLink

Below is a graph of the year-by-year net present valuation of the EarthLink Wi-Fi Agreement. This valuation excludes any revenues to EarthLink from content delivery by EarthLink for enterprise partners that pay to advertise through EarthLink. Information concerning such activity is proprietary. The costs of the project are estimated from available data on costing the technology that must be installed to create a Wi-Fi network that can be accessible by EarthLink fee-based subscribers and by Google account users, who will pay no fees for accessing the internet.

Google's revenues will strictly derive from the content that it provides to its users—fee-less subscribers. And Google's side-payments to access the EarthLink Wi-Fi network are part of the content revenues that EarthLink will earn and which are proprietary.

The costs of the project also include the right-of-way and pole fees that are a part of the proposed Agreement. Some of the nuances of the timing of prepayments of these fees are simplified in the model. Since the model contemplates annual revenues and costs, and the cash flow timing of fee prepayments and payments is quarterly, the model annualizes cash payments covering right-of-way fees, pole fees accruing to the SFPUC, and pole fees to be paid by EarthLink, Inc. to PG&E.

For this project, the cash flows generated by EarthLink from subscriptions net of project capital costs and maintenance expenses are discounted over time at a rate of 12.26 percent[7], indicative of the substantial risks embedded in this agreement and assumed by EarthLink in providing a Network for the City that will include fee-based subscribers and free access through Google, Inc. This means that dollars received by EarthLink in the future are heavily discounted to the substantial and significant risks of the project.

Figure 4: EarthLink Wi-Fi Agreement: Net Present Value of Project

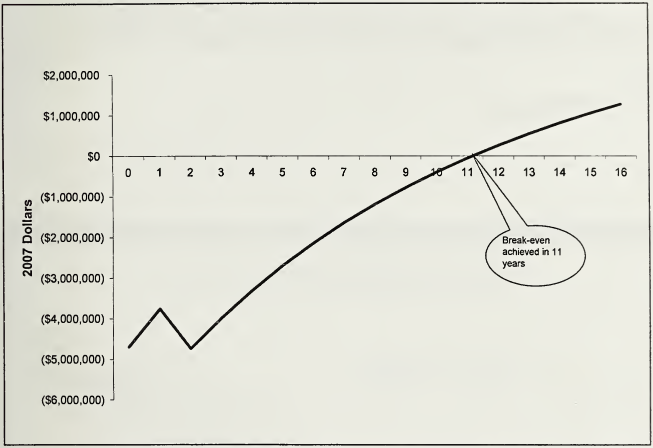


Figure 4 above illustrates that the capital costs of the project will be recovered by EarthLink from a sum equivalent to ten or eleven years of earned subscription fees. The actual time for EarthLink to earn positive cash flows from the project will be strictly a function of its ability to generate net present value positive cash flows once we include the content fees they will earn from other companies paying them fees for content delivery.[8]

The most noteworthy part of the illustration above is that, even without accounting for content revenues, the project is feasible within two or three of the four-year contract renewal cycles that are a part of the Agreement. This implies that EarthLink will most likely favor renewal of terms each time the contract is up for review. It also implies that the City may have future opportunities to consider further exaction in the form of fees for the privilege of delivering content to EarthLink fee-based subscribers via Wi-Fi in the City once the project's risks are better understood by the City and by EarthLink.

---

[7] Our capital valuation model values the project's risks based on a dividend discount model that accounts for systematic and non-systematic financial risks of the project. The model factors risks from various sources by including a variety of interest rates, and a correlative factor of company risk to overall market risk know as "beta".

[8] Other ISPs may take advantage of the Wi-Fi infrastructure and pay fees to EarthLink in order to provide content delivery to their clients or subscribers.

The net present value of the project to EarthLink is below $1.3 million. They will sink approximately $7 million in investment capital to create the system providing Wi-Fi access to the entire City, and will invest approximately $700,000 per year in maintenance and capital costs. However, the revenue streams that EarthLink will be able to generate will make this project feasible within the second or third renewal period, eight to twelve years from the initial year of the project. In reality, EarthLink's projected breakeven time period will be sooner than the calculation above because our model does not take into consideration the bulk of revenues—from content delivery and distribution.

This deal has a moderately favorable impact for the City and its residents—in the form of greater access to the internet at progressively higher speeds and lower costs—and extreme favorable impact for EarthLink, Inc. as their breakeven rate of return of 15.87% reflects.

CITY AND COUNTY OF SAN FRANCISCO - CONTROLLER'S OFFICE

We want your feedback!
Please use the following web link – or fill out, detach and mail the attached card to let us know your thoughts on this report.

Option 1: Web
http://www.sfgov.org/controller/feedback
The feedback link is listed with the report.
Option 2: Mail
Just fill in the card below, fold this in half and mail!
Option 3: Phone
Call the Controller's Office at 415-554-7500 and we will take your feedback over the phone.

Thank you for your feedback!

Fold along the dotted line and mail!

Controller's Office Report Feedback

Report 070077 - Approval of Agreement with EarthLink, Inc.
for a Citywide Wireless Broadband Internet Access Network

I am a:
☐ San Francisco Resident
☐ Media Reporter
☐ City of San Francisco Employee
☐ Resident of Another City: ___________
☐ Other: ___________________________

How do you rate this report?

	Very Good	Good	Neutral	Poor	Very Poor
Significance of topic	☐	☐	☐	☐	☐
Clear & concise	☐	☐	☐	☐	☐
Objective & fair	☐	☐	☐	☐	☐
Useful	☐	☐	☐	☐	☐
Overall Report Quality	☐	☐	☐	☐	☐

Comments:
____
____

For a complete list of our reports, visit our website at http://www.sfgov.org/controller

Thank you!

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 22978 SAN FRANCISCO, CA

POSTAGE WILL BE PAID BY ADDRESSEE

OFFICE OF THE CONTROLLER
CITY & COUNTY OF SAN FRANCISCO
875 STEVENSON RM 125
SAN FRANCISCO CA 94103-9576

▲ Fold completed survey here and mail ▲

▼ Tape here - no staples please ▼